

Claims

- [c1] 1. A universal mount for acoustically coupling a musical instrument tuner to an instrument, comprising:
a tuner sphere with a center point fixed to the tuner;
a link adapted and arranged to have selectable loose and fixed states, with the link including complementary first and second clamping halves joined by a compression element;
with an opposing pair of curved surfaces on a tuner end of the link, one of said pair of curved surfaces being on a tuner end of the first clamping half and the other curved surface being on a tuner end of the second clamping half, the curved surfaces at the tuner end disposed to grip the tuner sphere under compression imposed by the compression element when the link is in the fixed state and to release the tuner sphere for relative swiveling motion about the center point of the tuner sphere when the link is in the loose state; and
a clamp connected to a clamp end of the link for acoustically coupling the link and tuner to the musical instrument.
- [c2] 2. The mount of Claim 1 with a tuner post extending

from the tuner, and the tuner sphere connected to an end of the tuner remote from the tuner.

- [c3] 3. The mount of Claim 2 with the tuner post extending from a lower back surface of the tuner.
- [c4] 4. The mount of Claim 1 with the compression element being a threaded fastener extending through the clamping halves.
- [c5] 5. The mount of Claim 4 with the threaded fastener including a shaft with an abutment surface at one end adjacent one clamping half of the link, a male-threaded central section, a female-threaded nut engaged with the central section of the shaft and adjacent the other clamping half of the link, the nut fixed against rotation relative the other clamping half, and an E-clip engaged with the other end of the shaft, such that the E-Clip prevents the shaft and nut from being completely disengaged, and the fixed state of the link is selected by turning the shaft relative the nut in one direction to bring the abutment surface and nut into contact with their respective clamping halves, and the loose state of the link is selected by turning the shaft relative the nut in the other direction.
- [c6] 6. The mount of Claim 5 with the compression element

being hand-operable.

- [c7] 7. The mount of Claim 6 with the compression element being hand-operable by way of a knurled knob.
- [c8] 8. The mount of Claim 1 with the compression element being centrally located between said tuner and clamp ends of the link.
- [c9] 9. The mount of Claim 2 with a first slot in the tuner end first clamping half curved surface and a second slot in the tuner end second clamping half curved surface, the first and second slots permitting lateral support of the tuner post when the tuner post is swiveled into engagement with any of the first or second slots.
- [c10] 10. The mount of Claim 9 with opposed half slots in the tuner end clamping half curved surfaces cooperating to form third and fourth slots, the third and fourth slots permitting lateral support of the tuner post when the tuner post is swiveled into engagement with any of the third or fourth slots.
- [c11] 11. A universal mount for acoustically coupling a musical instrument tuner to an instrument, comprising:
a link connected to the tuner at a tuner end of the link;
a clamp sphere with a center point fixed to a clamp for acoustically coupling the link and tuner to the musical

instrument;
the link adapted and arranged to have selectable loose and fixed states, with the link including complementary first and second clamping halves joined by a compression element; and
with an opposing pair of curved surfaces on a clamp end of the link, one of said pair of curved surfaces being on a clamp end of the first clamping half and the other curved surface being on a clamp end of the second clamping half, the curved surfaces at the clamp end disposed to grip the clamp sphere under compression imposed by the compression element when the link is in the fixed state and to release the clamp sphere for relative swiveling motion about the center point of the clamp sphere when the link is in the loose state.

- [c12] 12. The mount of Claim 11 with a clamp post extending from the clamp, and the clamp sphere connected to an end of the clamp post remote from the clamp.
- [c13] 13. The mount of Claim 12 with the clamp post extending from an actuating arm of the clamp.
- [c14] 14. The mount of Claim 11 with the compression element being a threaded fastener extending through the clamping halves.

- [c15] 15. The mount of Claim 14 with the threaded fastener including a shaft with an abutment surface at one end adjacent one clamping half of the link, a male-threaded central section, a female-threaded nut engaged with the central section of the shaft and adjacent the other clamping half of the link, the nut fixed against rotation relative the other clamping half, and an E-clip engaged with the other end of the shaft, such that the E-Clip prevents the shaft and nut from being completely disengaged, and the fixed state of the link is selected by turning the shaft relative the nut in one direction to bring the abutment surface and nut into contact with their respective clamping halves, and the loose state of the link is selected by turning the shaft relative the nut in the other direction.
- [c16] 16. The mount of Claim 15 with the compression element being hand-operable.
- [c17] 17. The mount of Claim 16 with the compression element being hand-operable by way of a knurled knob.
- [c18] 18. The mount of Claim 11 with the compression element being centrally located between said tuner and clamp ends of the link.
- [c19] 19. The mount of Claim 12 with a first slot in the clamp

end first clamping half curved surface and a second slot in the clamp end second clamping half curved surface, the first and second slots permitting lateral support of the clamp post when the clamp post is swiveled into engagement with any of the first or second slots.

- [c20] 20. The mount of Claim 9 with opposed half slots in the clamp end clamping half curved surfaces cooperating to form third and fourth slots, the third and fourth slots permitting lateral support of the clamp post when the clamp post is swiveled into engagement with any of the third or fourth slots.
- [c21] 21. The mount of Claim 1, further comprising:
 - the clamp connected to the clamp end of the link by way of a clamp sphere with a center point fixed to the clamp; and
 - with an opposing pair of curved surfaces on the clamp end of the link, one of said pair of curved surfaces being on a clamp end of the first clamping half and the other curved surface being on a clamp end of the second clamping half, the curved surfaces disposed to grip the clamp sphere under compression imposed by the compression element when the link is in the fixed state and to release the clamp sphere for relative swiveling motion about the center point of the clamp sphere when the link is in the loose state.

- [c22] 22. The mount of Claim 21 with a tuner post extending from the tuner, and the tuner sphere connected to an end of the tuner post remote from the tuner, and with a clamp post extending from the clamp, and the clamp sphere connected to an end of the clamp post remote from the clamp.
- [c23] 23. The mount of Claim 22 with the tuner post extending from a lower back surface of the tuner, and with the clamp post extending from an actuating arm of the clamp.
- [c24] 24. The mount of Claim 21 with the compression element being a threaded fastener extending through the clamping halves.
- [c25] 25. The mount of Claim 24 with the threaded fastener including a shaft with an abutment surface at one end adjacent one clamping half of the link, a male-threaded central section, a female-threaded nut engaged with the central section of the shaft and adjacent the other clamping half of the link, the nut fixed against rotation relative the other clamping half, and an E-clip engaged with the other end of the shaft, such that the E-Clip prevents the shaft and nut from being completely disengaged, and the fixed state of the link is selected by turn-

ing the shaft relative the nut in one direction to bring the abutment surface and nut into contact with their respective clamping halves, and the loose state of the link is selected by turning the shaft relative the nut in the other direction.

- [c26] 26. The mount of Claim 25 with the compression element being hand-operable.
- [c27] 27. The mount of Claim 26 with the compression element being hand-operable by way of a knurled knob.
- [c28] 28. The mount of Claim 21 with the compression element being centrally located between said tuner and clamp ends of the link.
- [c29] 29. The mount of Claim 22 with a first slot in the tuner end first clamping half curved surface and a second slot in the tuner end second clamping half curved surface, the first and second slots at the tuner end permitting lateral support of the tunerBM_1_BM_1_ post when the tuner post is swiveled into engagement with any of the first or second slots at the tuner end, and with a first slot in the clamp end first clamping half curved surface and a second slot in the clamp end second clamping half curved surface, the first and second slots at the clamp end permitting lateral support of the clamp post when

the clamp post is swiveled into engagement with any of the first or second slots at the clamp end.

- [c30] 30. The mount of Claim 29 with opposed half slots in the tuner end clamping half curved surfaces cooperating to form third and fourth slots at the tuner end, the third and fourth slots at the tuner end permitting lateral support of the tuner post when the tuner post is swiveled into engagement with any of the third or fourth slots at the tuner end, and with opposed half slots in the clamp end clamping half curved surfaces cooperating to form third and fourth slots at the clamp end, the third and fourth slots at the clamp end permitting lateral support of the clamp post when the clamp post is swiveled into engagement with any of the third or fourth slots at the clamp end.
- [c31] 31. A universal mount for acoustically coupling a musical instrument tuner to an instrument, comprising:
a tuner sphere with a center point fixed to the tuner;
a clamp sphere with a center point fixed to a clamp, the clamp being for acoustically coupling the tuner to the musical instrument;
a link adapted and arranged to have selectable loose and fixed states, with the link including complementary first and second clamping halves joined by a compression element;

with an opposing pair of curved surfaces on a tuner end of the link, one of said pair of curved surfaces being on a tuner end of the first clamping half and the other curved surface being on a tuner end of the second clamping half, and with an opposing pair of curved surfaces on the clamp end of the link, one of said pair of curved surfaces being on a clamp end of the first clamping half and the other curved surface being on a clamp end of the second clamping half;

the curved surfaces at the tuner end disposed to grip the tuner sphere under compression imposed by the compression element when the link is in the fixed state and to release the tuner sphere for relative swiveling motion about the center point of the tuner sphere when the link is in the loose state;

the curved surfaces at the clamp end disposed to grip the clamp sphere under compression imposed by the compression element when the link is in the fixed state and to release the clamp sphere for relative swiveling motion about the center point of the clamp sphere when the link is in the loose state;

with a tuner post extending from the tuner, and the tuner sphere connected to an end of the tuner post remote from the tuner, and with a clamp post extending from the clamp, and the clamp sphere connected to an end of the clamp post remote from the clamp;

with the tuner post extending from a lower back surface of the tuner, and with the clamp post extending from an actuating arm of the clamp;

with the compression element being a threaded fastener extending through the clamping halves;

with the threaded fastener including a shaft with an abutment surface at one end adjacent one clamping half of the link, a male-threaded central section, a female-threaded nut engaged with the central section of the shaft and adjacent the other clamping half of the link, the nut fixed against rotation relative the other clamping half, and an E-clip engaged with the other end of the shaft, such that the E-Clip prevents the shaft and nut from being completely disengaged, and the fixed state of the link is selected by turning the shaft relative the nut in one direction to bring the abutment surface and nut into contact with their respective clamping halves, and the loose state of the link is selected by turning the shaft relative the nut in the other direction;

with the compression element being hand-operable by way of a knurled knob;

with the compression element being centrally located between said tuner and clamp ends of the link;

with a first slot in the tuner end first clamping half curved surface and a second slot in the tuner end second clamping half curved surface, the first and second slots

at the tuner end permitting lateral support of the tuner post when the tuner post is swiveled into engagement with any of the first or second slots at the tuner end, and with a first slot in the clamp end first clamping half curved surface and a second slot in the clamp end second clamping half curved surface, the first and second slots at the clamp end permitting lateral support of the clamp post when the clamp post is swiveled into engagement with any of the first or second slots at the clamp end; and

with opposed half slots in the tuner end clamping half curved surfaces cooperating to form third and fourth slots at the tuner end, the third and fourth slots at the tuner end permitting lateral support of the tuner post when the tuner post is swiveled into engagement with any of the third or fourth slots at the tuner end, and with opposed half slots in the clamp end clamping half curved surfaces cooperating to form third and fourth slots at the clamp end, the third and fourth slots at the clamp end permitting lateral support of the clamp post when the clamp post is swiveled into engagement with any of the third or fourth slots at the clamp end.

- [c32] 32. A universal mount for acoustically coupling a musical instrument tuner to an instrument, comprising:
a clamp connected to the tuner for acoustically coupling

the tuner to the musical instrument;
the clamp having a pair of hinged, opposed clamping arms joined by a hinge pin;
the clamp being urged to a closed state by a spring;
the clamp having a pair of opposed actuating arms, each of the actuating arms extending from a different one of the clamping arms at the hinge pin, such that relative motion of actuating arms towards each other moves the clamp to an opened state against the urging of the spring, and release of the actuating arms causes the clamping arms to clamp on to a part of a musical instrument placed between the clamping arms;
and each of the clamping arms including a curved intermediate surface and a planar end surface, the planar end surfaces being parallel and abutting each other when the clamp is in the closed state, and the curved intermediate surfaces being oppositely curved, such that the curved intermediate surfaces define an open space between the curved intermediate surfaces.

- [c33] 33. The mount of Claim 32 with the curved intermediate surfaces being partially cylindrical.
- [c34] 34. The mount of Claim 33 with the planar end surfaces having semi-circular perimeters.